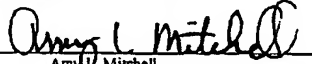


IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

App. No.: 10/695,115
Inventor: Mysker, Thomas
Filed: October 28, 2003
Art Unit: 3643
Examiner: Price, Richard Thomas Jr.
Docket No.: 1776/40924/PA7
Customer No.: 00279

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 Amy L. Mitchell	

SECOND AMENDED APPEAL BRIEF

I. REAL PARTY IN INTEREST

The real party in interest is Appellant/Applicant, Poly-clip System Corp., as a result of transfer of all right, title, and interest to the subject matter of this application, via an Assignment recorded in the Patent Office in Reel 014974, Frame 0573, on February 13, 2004.

II. RELATED APPEALS AND INTERFERENCES

Appellant and Appellant's undersigned legal representative know of no related appeals, interferences, or judicial proceedings which may be related to, directly affect, or be directly affected by or have a bearing on the Board's decision in this pending appeal. There are two related patent applications that are commonly owned, have common subject matter, and/or claim to a common priority application which may be related to, directly affect, or have a bearing on the Board's decision in the pending appeal:

A. United States Patent Application No. 10/867,977

This application is a continuation of the application on appeal and has been allowed but has not yet issued.

B. PCT Application No. PCT/US04/35825

This international application was filed in the United States Patent and Trademark Office as Receiving Office and claims priority from the application on appeal. Copies of the published application, WO 2005/044020 A2, the International Search Report, and the Written Opinion of the International Searching Authority are attached in the Related Proceedings Appendix. This application is about to enter the national phase in Europe but has not yet been filed as of the date of filing this Brief.

III. STATUS OF CLAIMS

Claims 1 through 14 are pending in the application and have been twice rejected. Appellant appeals the rejection of all 14 claims.

IV. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

This invention relates to the field of preparing food products in shirred, tubular casings and enclosing the products in netting.

Independent claim 1 claims an apparatus to net a food product in shirred tubular casings, comprising:

- a. *A filling horn adapted to received extruded food products and having an outside diameter on which a tubular casing having a filled diameter has been shirred, said outside diameter being less than said filled diameter.* The filling horn is element 30 on Figures 1, 2, and 3, and is described in the paragraph beginning on page 3, line 22, and in the paragraph beginning on page 5, line 9. The diameter of the filling horn is described at page 5, lines 1-2.
2. The tubular casing is element 40 on Figure 2 and is described at page 4, line 2; page 5, lines 10 and 15; page 6, lines 3-5. The filled diameter of the tubular casing is described at page 6, lines 4-7. Shirring of the tubular casing onto the filling horn is described at page 5, lines 5-6, and is shown in Figure 2.
- b. *A shir housing having a diameter greater than said outside diameter of said filling horn and located coaxially to said filling horn.* The shir housing is element 10 in Figures 1, 2, and 3, and is described at page 4, lines 5-12. The diameter of the shir housing is described at page 5, lines 1-2. The location of the shir housing is illustrated in Figures 1, 2, and 3 and is described at page 4, lines 9-10.
- c. *A netting tube releasably attachable to said shir housing and on which tubular netting having a diameter less than said filled diameter of said tubular casing has been rucked.* The netting tube is element 20 in Figures 1, 2, and 3, and is described at page 3, line 22, and at page 4, lines 14-21. The releasable attachment of the netting tube is described at page 4,

lines 14-20. The tubular netting is element 50 in Figure 3 and is described at page 4, lines 15-16. The diameter of the tubular netting is described at page 4, lines 20-21. The rucking of the tubular netting onto the netting tube is shown in Figure 3 and is described at page 4, lines 15-16 and at page 5, lines 16-17.

- d. *Whereby food products extruded into said filling horn expand said tubular casing against said netting to create a dimpled appearance in the food product.* Food products are described at page 1, lines 11-12 and lines 15-17, and at page 6, lines 1-2. The extrusion of food products into the filling horn is described at page 6, lines 1-7. The expansion of the tubular casing is described at page 6, lines 5-7. The dimpled appearance is described at page 6, lines 6-7.

Independent claim 8 claims a method of preparing food products in netted tubular casings, comprising:

- a. *Shirring tubular casing having a filled diameter on a filling horn having an outside diameter, said outside diameter being less than said filled diameter.* This step is described in Figure 4, box 100. The tubular casing is element 40 on Figure 2 and is described at page 4, line 2; page 5, lines 10 and 15; page 6, lines 3-5. The filled diameter of the tubular casing is described at page 6, lines 4-7. The filling horn is element 30 on Figures 1, 2, and 3, and is described in the paragraph beginning on page 3, line 22, and in the paragraph beginning on page 5, line 9. The diameter of the filling horn is described at page 5, lines 1-2. Shirring of the tubular casing onto the filling horn is described at page 5, lines 5-6, and is shown in Figure 2.

- b. *Placing said filling horn in a housing having an inside diameter greater than said outside diameter of said filling horn.* This step is described in Figure 4, box 102. The housing is element 10 in Figures 1, 2, and 3, and is described at page 4, lines 5-12. The diameter of the housing is described at page 5, lines 1-2. The location of the housing is illustrated in Figures 1, 2, and 3 and is described at page 4, lines 9-10.
- c. *Rucking a tubular netting having a diameter less than said filled diameter onto a netting tube.* This step is described in Figure 4, box 104. The tubular netting is element 50 in Figure 3 and is described at page 4, lines 15-16. The diameter of the tubular netting is described at page 4, lines 20-21. The rucking of the tubular netting onto the netting tube is shown in Figure 3 and is described at page 4, lines 15-16 and at page 5, lines 16-17.
- d. *Attaching said netting tube to said housing.* This step is described in Figure 4, box 106 and at page 4, lines 14-20.
- e. *Extruding food products through said filling horn.* This step is described in Figure 4, box 110, and at page 6, lines 1-7.
- f. *Whereby the food products expand said tubular casing against said netting to create a dimpled appearance in the food product.* This step is described at page 6, lines 1-7.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claims 1, 3, 8, and 10 are unpatentable under 35 U.S.C. Section 102(b) as being anticipated by U.S. Patent No. 5,024,041 to Urban.
- B. Whether claims 2 and 9 are unpatentable under 35 U.S.C. Section 103(a) as being unpatentable over Urban.
- C. Whether claims 4 through 7 and 11 through 14 are unpatentable under 35 U.S.C. Section 103(a) as being unpatentable over Urban in view of U.S. Patent No. 5,135,770 to Underwood.

VII. ARGUMENT

- A. **Whether claims 1, 3, 8, and 10 are unpatentable under 35 U.S.C. Section 102(b) as being anticipated by U.S. Patent No. 5,024,041 to Urban.**

Please note that Appellant argues claims 1 and 8, the sole independent claims, together.

Appellant respectfully submits that the prior art reference of record fails to describe each limitation of claims 1 and 8 of the present application. Accordingly, the rejection set forth by the Examiner is improper. As the prior art reference of record does not anticipate the two independent claims, that reference also fails to anticipate the dependent claims.

- 1. **Urban does not describe tubular netting having a diameter less than the filled diameter of the tubular casing.**

Both independent claims require that the tubular netting have a diameter less than the filled diameter of the tubular casing:

Claim 1 contains the following limitations:

a tubular casing having a filled diameter

tubular netting having a diameter less than said filled diameter of
said tubular casing

Claim 8 contains the following limitations:

shirring tubular casing having a filled diameter

rucking a tubular netting having a diameter less than said filled
diameter

Both claims contain a "whereby" clause explaining that the food products:

expand said tubular casing against said netting to create a dimpled
appearance in the food product.

These limitations are not present in Urban. Urban does not describe, suggest, or refer to the size of the netting. Urban does not ever state, or even allude to, the relative sizes of the netting and the tubular casing.

Urban's object is to provide a device for filling tubular casings that enables continuous application of a tubular net to a tubular casing. Col. 1, ln. 32-35. Please note that Urban does not want to expand the casing against the netting to create a dimpled appearance; he just wants to apply a tubular net during the stuffing operation. Urban claims a brake for the casing, because a brake is necessary "[i]n order to stuff the casing tightly and in a crease-free manner. . . ." Col. 1, ln. 18-19. Appellant recognizes that Urban makes this statement in the Background of the Invention. Nevertheless, he describes his brake at great length in his Detailed Description and the point of the brake, according to Urban, is to stuff the casing in a crease-free manner.

Appellant also recognizes that Urban teaches a process for filling the casing tightly, as noted by the Examiner. For example, at column 4, lines 38 through 40, Urban teaches that the casing is expanded by the pressure of the pressed-in sausage meat and is tightly filled. Please note, however, that it is Urban's *casing* that is tightly filled. Urban never says anything about the *net* being tightly filled.

Based on Urban's sole figure, it appears that the netting is not tightly filled. Urban's casing is element 26 and his netting is element 27. A portion of Urban's sausage is downstream of the brake ring 19, and therefore, according to Urban, "tightly filled". (That portion, in Urban's sole figure, is near the top of the illustration, just under clip 28.) Urban's netting, however, is very loosely wrapped around this tightly-filled sausage. Accordingly, it is clear from Urban's description and illustration that he does not intend to fill the netting tightly. He clearly wants to fill the casing tightly, as do many sausage manufacturers. But Urban does not describe, suggest, or allude to filling the **netting** tightly.

The Examiner notes that it is known to apply a net to the outside surface of the casing. Office Action Mailed April 12, 2005, at page 3, second full paragraph. Appellant agrees that applying a net is known in the art. But what is not known in the art, and what is not described in Urban, is applying a net having a smaller diameter than the casing, so that the casing expands against the net to form dimples. The prior art describes a netting having a larger diameter than the casing.

The Examiner also asserts that the casing of the diameter can vary depending on the pressure of the meat product. Office Action Mailed April 12, 2005, at page 4, first paragraph. Appellant notes that the diameter can expand somewhat depending on pressure, but there is a practical limitation of the tensile strength of the casing. (Consider a common balloon. A user can vary the diameter of the balloon by adjusting the pressure used to blow up the balloon. But eventually, too much pressure will cause the balloon to explode.) But Urban does not describe varying the diameter and he does not describe varying the diameter to create dimples in the casing. Urban states only that the casing be "tightly filled". The added step of filling the casing against a smaller net, so that the casing expands through the net to create dimples, is not found in

Urban. It is not necessary to Urban's process and apparatus, it is not apparent from Urban's description, and it is contrary to Urban's drawing. Accordingly, the claims of the present application are novel over Urban and should have been allowed.

It is elementary that a prior art reference must describe each and every limitation of a claim, explicitly or inherently, in order to anticipate a claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *E.g.*, MANUAL OF PATENT EXAMINING PROCEDURE at § 2131. Urban does not describe, explicitly or inherently, the limitations at issue in the present application. Accordingly, the Examiner's rejection should be overturned.

2. Urban would not have infringed Appellant's claims.

The classic test for anticipation is, that which will infringe, if later, will anticipate, if earlier. *E.g.*, *Knapp v. Morss*, 150 U.S. 221 (1893); *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, 246 F.3d 1368, 1378 (Fed. Cir. 2001). Urban's invention, had it come later than Appellant's invention, would not have infringed the claims of the present application.

For example, claim 1 of the present invention requires "tubular netting having a diameter less than said filled diameter of said tubular casing. . . ." Urban's tubular netting does not have such a diameter. No reasonable jury could conclude that Urban's netting meets this limitation. Accordingly, Urban's apparatus could not be found to infringe claim 1 and, not being infringing, it also cannot anticipate claim 1. (The same analysis applies to the method of claim 8.)

3. The Office has already found that Urban does not anticipate the claims of the present invention.

Appellant submitted an application under the Patent Cooperation Treaty, to the United States Patent and Trademark Office as Receiving Office, on October 28, 2004, International Application No. PCT/US2004/035825, claiming priority from the present application. A copy of

the PCT application is attached as Exhibit A to the Related Proceedings Appendix. (Please note that this application is a public record.)

The claims of the PCT application are only insignificantly different from the claims of the present application. For example, claim 1 of the PCT application claims:

a casing having a filled dimension when filled with a food product;
a netting having an outside dimension less than said filled dimension. . . .

These limitations are substantially identical to claim 1 of the present application, which claims:

a tubular casing having a filled diameter
tubular netting having a diameter less than said filled diameter of said tubular casing. . . .

On August 3, 2005, the Office, as International Searching Authority, issued an International Search Report and a Written Opinion, copies of which are attached as Exhibits B and C. These documents were issued and signed by the Examiner who rejected the claims under appeal, in his capacity as Authorized Officer, are accordingly available to him, and he is aware of the contents of those documents.

The only art cited in the Search Report is Urban. In the opinion of the Office, as International Searching Authority, Urban does not anticipate the claims of the invention. In Box No. V (third page of the Written Opinion), with regard to novelty, claims 1 through 28 are considered novel. According to the Authorized Officer, "Claims 1 through 28 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the claimed invention."

If a claimed invention is novel under the Patent Cooperation Treaty, then it is not anticipated by the prior art. PATENT COOPERATION TREATY Article 33(2). Accordingly, if the

claims of the present invention are novel over Urban under the Patent Cooperation Treaty, the claims are not anticipated by Urban. If the present invention is novel under the PCT, it is novel under United States patent law. Novelty is novelty in either arena. Otherwise, Appellant is in the curious position of having a positive opinion on novelty, to use to enter the national stage in other countries, but a rejection on novelty, by the same Examiner from the same Office, in the United States.

Since the Office concedes that the claims are novel over Urban, as admitted in the PCT Written Opinion, as signed by the same Examiner who rejected the claims under appeal, the Board should agree and find the claims of the present application to be novel over Urban.

B. Whether claims 2 and 9 are unpatentable under 35 U.S.C. Section 103(a) as being unpatentable over Urban.

The Examiner rejected dependent claims 2 and 9 under Section 103(a) as unpatentable over Urban. According to the Examiner, it would have been obvious to add a clipper to the apparatus of Urban.

Regardless of whether it would have been obvious to add a clipper to Urban's apparatus, Urban does not teach all of the limitations of independent claims 1 and 8, as set forth above. Accordingly, a Section 103 rejection of dependent claims 2 and 9 is improper.

C. Whether claims 4 through 7 and 11 through 14 are unpatentable under 35 U.S.C. Section 103(a) as being unpatentable over Urban in view of U.S. Patent No. 5,135,770 to Underwood.

The Examiner rejected claims 4 through 7 and 11 through 14 under Section 103(a) as unpatentable over Urban. According to the Examiner, it would have been obvious to combine Underwood with Urban.

Regardless of whether it would have been obvious to combine Urban and Underwood, Urban does not teach all of the limitations of independent claims 1 and 8, as set

forth above. Accordingly, a Section 103 rejection of those claims dependent on claims 1 and 8 is improper.

VIII. CLAIMS APPENDIX

1. An apparatus to net a food product in shirred tubular casings, comprising:
a filling horn adapted to received extruded food products and having an outside diameter on which a tubular casing having a filled diameter has been shirred, said outside diameter being less than said filled diameter and,
a shir housing having a diameter greater than said outside diameter of said filling horn and located coaxially to said filling horn, and
a netting tube releasably attachable to said shir housing and on which tubular netting having a diameter less than said filled diameter of said tubular casing has been rucked, whereby food products extruded into said filling horn expand said tubular casing against said netting to create a dimpled appearance in the food product.
2. The apparatus of claim 1, further comprising a clipper.
3. The apparatus of claim 1, wherein said tubular casing is edible.
4. The apparatus of claim 1, wherein said tubular casing is dyed.
5. The apparatus of claim 4, wherein said tubular casing is dyed in a pattern.
6. The apparatus of claim 1, wherein said tubular casing further comprises flavoring.
7. The apparatus of claim 1, wherein said flavoring comprises smoke flavoring.
8. A method of preparing food products in netted tubular casings, comprising:
shirring tubular casing having a filled diameter on a filling horn having an outside diameter, said outside diameter being less than said filled diameter,
placing said filling horn in a housing having an inside diameter greater than said outside diameter of said filling horn,

rucking a tubular netting having a diameter less than said filled diameter onto a netting tube,

attaching said netting tube to said housing,

extruding food products through said filling horn, whereby the food products expand said tubular casing against said netting to create a dimpled appearance in the food product.

9. The method of claim 8, further comprising a clipper.
10. The method of claim 8, wherein said tubular casing is edible.
11. The method of claim 8, wherein said tubular casing is dyed.
12. The method of claim 11, wherein said tubular casing is dyed in a pattern.
13. The method of claim 8, wherein said tubular casing further comprises flavoring.
14. The method of claim 13, wherein said flavoring comprises smoke flavoring.

IX. EVIDENCE APPENDIX

None.

X. Related Proceedings Appendix

The following documents related to International Application No. PCT/US2004/035825, the international application claiming priority from the application on appeal:

- A. Published Application No. WO 2005/044020 A2.
- B. International Search Report signed by Thomas Price as Authorized Officer.
- C. Written Opinion signed by Thomas Price as Authorized Office.

CONCLUSION

In light of the foregoing, Appellant submits that the rejection of all claims is improper. The cited prior art does not describe, teach, or suggest the use of netting having a smaller diameter than the casing. Accordingly, the cited prior art does not anticipate the claims of the present application. The rejections should therefore be withdrawn, and the Examiner should be directed to issue a Notice of Allowance forthwith.

Respectfully submitted,
Poly-Clip System Corp.

Date: April 26, 2006

By: _____

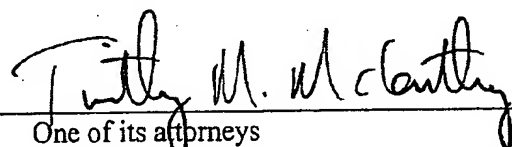

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(54) Title: APPARATUS AND METHOD TO NET FOOD PRODUCTS IN SHIRRED TUBULAR CASING

(57) Abstract: An apparatus and method to net shirred tubular casing, in order to create a highly dimpled food product. A filling horn, shir housing, and removable netting tube allow for the extrusion of food products into an edible tubular collagen film, which itself expands into a netting of a smaller diameter than that of the film. As the food product under pressure expands against the tubular film, it presses through the spaces in the netting to create a dimpled appearance. After the food product has been further processed, the netting is removed, leaving a highly-dimpled appearance.

WO 2005/044020 A2

Apparatus and Method to Net Food Products in Shirred Tubular Casing

BACKGROUND OF THE INVENTION

This invention relates to the field of preparing food products in shirred, tubular casings and enclosing the products in netting. As used in this specification, the term "shir" refers to the process of gather a continuous tube of casing material over a tube or horn. The term "ruck" means to shir netting over a tube or horn. Traditionally, meat products were wrapped in netting prior to processing. Removal of the netting after processing, whether it be cooking, smoking, curing, aging, or otherwise, often resulted in some of the meat products sticking to the netting and being pulled off during the removal process, leaving an unsightly appearance unpleasant to consumers.

The use of edible collagen films solved this problem. Meat products, including sausages and whole-muscle products, are now conventionally enveloped into a tubular shape in an edible collagen film. In the prior art, flat sheets of collagen film are turned over plows to form a sausage casing. The casing is then wrapped in a net and the product is further processed, such as cooking, aging, or smoking. After processing, the netting is removed easily, as it does not stick to the collagen film. Various collagen films can be used, including flavored and colored films, to create various taste sensations or appearances.

The use of flat sheets of collagen films requires the use of complicated plows and guides, as noted in United States Patent No. 4,958,477 to Winkler. The use of such an arrangement requires extended set up time and diligent supervision during operation. This method also produces quite a bit of overlap of film and allows food product to leak at the seams if insufficient overlap is not present. Accordingly, this method inefficiently wastes film.

The use of netting provides a mesh or dimpled appearance on the surface of the food products. Having a dimpled appearance is considered more appealing to consumers, so there is an advantage to being able to create a highly-dimpled appearance in a food product, especially sausages and hams and other smoked products.

Accordingly, a need exists for a simpler, more efficient, easier way to encase food products in collagen film, requiring less set up time, less supervision, and producing a highly-dimpled end product. The present invention fills this need.

BRIEF SUMMARY OF THE INVENTION

The present invention uses tubular shirred casing, rather than sheets of casing film, and the extrusion of the food products into a casing of larger diameter than the netting, which will cause the netting to constrict around the casing, leaving a dimpled appearance. Food products, either sausages or whole-muscle meats, are extruded through a tube or horn through a shir housing on which a tubular edible collagen film has been shirred. In a first embodiment, the shir housing is coaxial to a netting tube on which netting, of smaller diameter than that of the collagen film, has been rucked. As the food products exit the shir housing and extrude into the tubular film, they expand the film, pushing that film outwards and against the netting. Since the collagen film is of a larger diameter than the netting, the pressure of the food products against the collagen film creates a dimpled appearance in that film. In another embodiment, the netting is carried on a removable tube.

It is an object of this invention to create an apparatus and method of packing food products in a tubular edible collagen film, rather than wrapping the food products in cylindrical form in flat sheets of collagen film. It is a further object of this invention to package the food products in a tubular collagen film of a larger diameter than the netting, in order to emphasize the dimpled appearance of the products. Although the invention will be described for the use of sausage, it can be used for any product, including whole-muscle meats, cheeses, vegetarian sausage, or any other product in which a dimpled appearance is desired.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a cross-sectional view of the apparatus of one embodiment of the present invention.

FIGURE 2 is a cross-sectional view of an embodiment of the apparatus of the present invention, showing the film shirred thereon.

FIGURE 3 is a cross-sectional view of an embodiment of the apparatus of the present invention, showing the netting rucked thereon.

FIGURE 4 is an elevation view of a removable tube as used in one embodiment of the present invention.

FIGURE 5 is a cross-sectional view of the apparatus of the present invention, with the

removable tube of FIGURE 4 in use.

FIGURE 6 is a perspective view of a tube holder as used in one embodiment of the present invention.

FIGURE 7 is a cross-sectional view of an embodiment of the apparatus of the present invention, with the tube holder of FIGURE 6 in use.

FIGURE 8 is a cross-sectional view of an embodiment of the apparatus of the present invention with the removable tube of FIGURE 4 attached directly thereon by means of a cover.

FIGURE 9 is a flow diagram of an embodiment of the method of the present invention.

FIGURE 10 is a flow diagram of another embodiment of the method of the present invention.

FIGURE 11 is a side view of a tubular edible collagen film which can be used in present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

While the invention may be susceptible to embodiment in different forms, there is shown in the drawings, and herein will be described in detail, specific embodiments with the understanding that the present disclosure is to be considered an exemplification of the principles of the invention, and is not intended to limit the invention to that as illustrated and described herein.

The apparatus 2 comprises a shir housing 10, a netting tube 20, and a filling horn 30, as shown in FIGURE 1. The filling horn 30 is a long tube that attaches to and protrudes horizontally from a standard food preparation apparatus, not pictured, such as a conventional sausage-making machine. Tubular edible collagen film 40 is shirred onto the filling horn 30 prior to use, as shown in FIGURE 2, which illustrates the filling horn 30 with the film 40 shirred onto the filling horn 30. As shown in FIGURE 2, the film 40 is of a greater diameter than the outside diameter of the filling horn 30. Accordingly, when the film 40 is shirred onto filling horn 30, film 40 is bunched up at the upstream end 32 of filling horn 30.

The tubular edible collagen film 40 can be dyed, and can be dyed in a pattern, see

FIGURE 11. The tubular edible collagen film 40 can have flavoring, which can be smoke flavoring.

The shir housing 10 is also a tube 11 of larger diameter than that of the filling horn 30, so that the bunched-up film 40 will fit between filling horn 30 and shir housing 10. In the preferred embodiment, the shir housing 10 has a seven-inch diameter while the filling horn 30 has a three-inch diameter. The shir housing 10 is welded at its upstream end 12 to a back plate 16. The back plate 16 attaches to the sausage-making machine and contains an aperture 18 through which the filling horn 30 extends. Accordingly, the filling horn 30 is coaxial to and inside of the shir housing 10. The filling horn 30 can either sit snugly within the aperture 18, or can be sealed with a suitable gasket, or can be welded directly to the back plate 16.

The netting tube 20 in a first embodiment is an elongated tubular member 21 welded to a transition plate 22 at its upstream end 24. The netting tube 20 attaches to the shir housing 10 at the downstream end 14 of the shir housing 10. Preferably, fasteners 28 sold under the brand name QUICK LOCK® are used, but any convenient means of attachment will suffice, such as bayonet pins, locking pins, threaded fasteners, interference fit, or anything else that attaches the transition plate 22 of the netting tube 20 to the shir housing 10. In this embodiment, netting 50 is rucked onto netting tube 20 as shown in FIGURE 3. The netting 50 is of a smaller diameter than that of the tubular film 40. Accordingly, the netting tube 20 is of an intermediate diameter to that of the shir housing 10 and the filling horn 30. In the preferred embodiment, the netting tube 20 has a diameter of four inches.

In this embodiment, a break ring 60 can be placed on the downstream end 26 of the netting tube 20, to rectify the release of netting 50 from the netting tube. Preferably, however, a derucking rectifier is used in order to obtain sausages of consistent length.

A user of apparatus 2 will preferably have at least two netting tubes 20. While one netting tube 20 is attached to apparatus 2 and being used to make, for example, sausage, as will be described below, a spare netting tube 20 will be in the process of having netting 50 rucked onto it. Netting often comes from a manufacturer wound circumferentially on a tube, and must be rucked onto a netting tube 20, preferably by an apparatus such as is described in United States Patent Application No. 10/675,440, Improved Net Rucking Apparatus and Method, filed on September 30, 2003.

In another embodiment, netting 50 is purchased already rucked onto a removable tube

70. Removable tube 70, as illustrated in FIGURE 4 without netting 50, is preferably plastic and can be a disposable or recyclable plastic. Removable tube 70 is an elongated tubular section 72 and a base plate 74. In this embodiment, base plate 74 locks onto transition plate 22, as shown in FIGURE 5. Base plate 72 preferably is configured to lock onto transition plate 22 with a bayonet-lock arrangement 76 but any type of attachment, such as fasteners 28 sold under the brand name QUICK LOCK®, locking pins, threaded fasteners, interference fit, or other means will suffice. In this embodiment, the user of apparatus 2 does not need to have multiple netting tubes 20 or a separate net rucking apparatus, since the netting 50 is rucked onto removable tube 70 by an outside vendor.

Please note that a break ring 60 can be used to rectify the rate at which netting 50 comes off removable tube 70.

If removable tube 70 is used, several alternative arrangements are possible for netting tube 20. In one embodiment, netting tube 20 is as described above in connection with FIGURE 5. Removable tube 70 slides over netting tube 20 and locks onto transition plate 22. The user of apparatus 2 then has the option of using netting 50 that has already been rucked onto removable tubes 70, or using a separate rucking apparatus as described above to ruck netting 50 onto netting tube 20.

Alternatively, instead of netting tube 20, tube holder 80, as shown in FIGURE 6, can be used in conjunction with removable tube 70. Tube holder 80 is preferably four rods 82a, 82b, 82c, and 82d, which span and connect downstream ring 84 and attachment disc 86. Attachment disc 86 has the same outside diameter as shir housing 10 and connects to shir housing 10 by fasteners 28 sold under the brand name QUICK LOCK®, in the same manner as transition plate 22 connected to shir housing 10 as described above. Attachment disc 86 defines annular aperture 88 through which filling horn 30 projects. FIGURE 7 shows tube holder 80 as attached to shir housing 10. In this configuration, removable tube 70 slides over tube holder 80 and base plate 74 locks onto attachment disc 86.

In another embodiment, cover 90 is a flat disc defining annular aperture 92. Cover 90 attaches to shir housing 10 by means of fasteners 28 sold under the brand name QUICK LOCK®, in the same manner as transition plate 22 connected to shir housing 10 as described above. In this embodiment, base plate 74 of removable tube 70 locks onto cover 90 with a bayonet-lock arrangement 94, similar to how tubular holder 70 locks onto transition plate 22

as described above. Thus, tubular holder 70 attached directly to cover 90, and therefore to shir housing 10, without any internal support, as shown in FIGURE 8. In this embodiment, removable tube 70 must have sufficient structural strength to maintain a horizontal configuration.

5 In the use of apparatus 2, the filling horn 30 protrudes from the sausage-making machine and has a length of tubular edible collagen film 40 shirred onto it. The film 40 is protected by the shir housing 10, which surrounds the netting tube 20 near the upstream end 24 of the netting tube 20. In some embodiments, the netting tube 20 extends downstream from the shir housing 10 and holds the netting 50 in place. In another embodiment, netting 10 50 is held in place on removable tube 70, which either slides over netting tube 20, over tube holder 80, or locks directly onto shir housing 10 via cover 90. A conventional clipper 62 is located at the downstream end 34 of the filling horn 30.

The tubular film 40 is shirred onto the filling horn 30 and past the downstream end 34 of the filling horn 30. The netting 50 surrounds film 40 coaxially. Upon first use, the end of 15 the netting 50 and the end of the film 40 are clipped by clipper 62. The clip applied here will become one end of the first sausage made by the apparatus 2. (Please note, however, that the first sausage is likely to contain quite a bit of air. It is recommended to bleed as much air out of the system as possible before applying the first clip.)

The sausage meat, having been made in the sausage-making machine, is extruded 20 under pressure in a conventional manner into the bore of the filling horn 30. As the sausage meat progresses downstream through the filling horn 30, it pushes the tubular film 40 off the filling horn 30 and out the downstream end of the apparatus 2, and pushes the netting 50 off the netting horn 20 or removable tube 70. As the film 40 is pushed off the filling horn 30, it expands outward against the netting 50 from the pressure of the sausage meat. Since the 25 netting 50 is of a smaller diameter than that of the film 40, the film 40 will bulge through the spaces in the netting 50, creating the dimpled appearance that is an object of the invention.

After a sufficient length of sausage has been extruded, the clipper 62 squeezes the netting 50 and film 40, applies two clips, and severs the sausage between the two clips in a conventional manner. The sausage is now ready for further processing, such as cooking or 30 smoking. The next sausage is ready for filling as described above and the process continues as set forth above.

The steps of the method of one embodiment of the present invention are shown in box diagram form in FIGURE 9. These steps are to shir the tubular casing 40 onto the filling horn 30 (step 100), place the filling horn 30 in the shir housing 10 (step 102), ruck netting 50 onto a netting tube 20 (step 104), attach netting tube 20 to shir housing 10 (step 106), clip the downstream end of netting 50 and film 40 to close an end of a tube (step 108), extrude food products through filling horn 30 (step 110), form sausages, attach two clips, and sever (step 112) and repeat the process (step 114).

The steps of another embodiment are shown in box diagram form in FIGURE 10. These steps are to shir the tubular casing 40 onto the filling horn 30 (step 200), place the filling horn 30 in the shir housing 10 (step 202), install removable tube (on which netting is already rucked) onto shir housing (step 204), clip the downstream end of netting 50 and film 40 to close an end of a tube (step 206), extrude food products through filling horn 30 (step 208), form sausages, attach two clips, and sever (step 210) and repeat the process (step 212).

In either embodiment as described, the sausage product is ready for further processing, such as cooking or smoking.

While preferred embodiments of the present invention are shown and described, it is envisioned that those skilled in the art may devise modifications of the present invention without departing from the spirit and scope of the appended claims.

I claim:

1. In combination, an apparatus to net a food product, a casing and netting, comprising:
a casing having a filled dimension when filled with a food product;
5 a netting having an outside dimension less than said filled dimension; and
an apparatus including

a filling horn defining a bore for receiving extruded food products and having
a cross-sectional dimension, said filling horn receiving said casing, said filled dimension of
said casing being greater than said cross-sectional dimension of said filling horn,

10 a shir housing attachable coaxially to said filling horn and having an outside
dimension greater than said outside dimension of said filling horn, and

a netting housing attached to said shir housing coaxially to said filling horn for
receiving said netting,

15 whereby food products extruded from said filling horn into said casing expand said
casing against said netting to create a dimpled appearance in the food product.

2. The combination of claim 1, wherein said netting housing is releasably attached to
said shir housing.

- 20 3. The combination of claim 2, wherein said netting housing includes a tubular wall and
a back plate to which the tubular wall is attached, said back plate being attached to said shir
housing.

- 25 4. The combination of claim 1, wherein said netting housing is formed of at least two
rods spanning between and connected to a ring and an attachment disc, and a housing
attached thereto which includes a wall and a back plate to which the wall is attached.

5. The combination of claim 4, wherein said housing of said netting housing is
releasably attached to said rods.

- 30 6. The combination of claim 1, wherein said casing and said netting are tubular.

7. The combination of claim 6, wherein said netting housing is tubular.
8. The combination of claim 1, wherein said apparatus further comprises a clipper.
- 5 9. The combination of claim 1, wherein said casing is edible.
10. The combination of claim 1, wherein said casing is dyed.
11. The combination of claim 10, wherein said casing is dyed in a pattern.
- 10 12. The combination of claim 1, wherein said casing further comprises flavoring.
13. A method of creating a dimpled appearance on a food product, comprising:
shirring a casing having a filled cross-sectional dimension onto a filling horn having a
15 cross-sectional dimension less than said filled cross-sectional dimension of said casing;
rucking a netting having a cross-sectional dimension less than said filled cross-
sectional dimension of said casing onto a netting housing;
attaching said netting housing to said filling horn;
extruding food products through said filling horn, whereby the food products expand
20 said casing against said netting to create a dimpled appearance in the food product.
14. The method of claim 13, further comprising clipping said casing and said netting.
15. An apparatus to create a dimpled appearance on a food product, comprising:
25 a filling horn defining a bore for receiving extruded food products and having a cross-
sectional dimension, said filling horn adapted to receive a shirred casing having a cross-
sectional dimension greater than said cross-sectional dimension of said filling horn,
a shir housing attachable coaxially to said filling horn and having an outside
dimension greater than said outside dimension of said filling horn, and
30 a netting housing releasably attachable to said shir housing coaxially to said filling
horn and adapted to receive rucked netting having an outside dimension less than said cross-

sectional dimension of said casing,

whereby food products extruded through said filling horn expand said casing against said netting to create a dimpled appearance in the food product.

5 16. The apparatus of claim 15, wherein said netting housing is releasably attached to said shir housing.

10 17. The apparatus of claim 16, wherein said netting housing includes a tubular wall and a back plate to which the tubular wall is attached, said back plate being attached to said shir housing.

15 18. The apparatus of claim 15, wherein said netting housing is formed of at least two rods spanning between and connected to a ring and an attachment disc, and a housing attached thereto which includes a wall and a back plate to which the wall is attached.

19. The apparatus of claim 18, wherein said housing of said netting housing is releasably attached to said rods.

20 20. The apparatus of claim 15, wherein said casing and said netting are tubular.

21. The combination of claim 20, wherein said netting housing is tubular.

22. The apparatus of claim 15, further comprising a clipper.

25 23. The apparatus of claim 15, wherein said tubular casing is edible.

24. The apparatus of claim 15, wherein said tubular casing is dyed.

25. The apparatus of claim 24, wherein said tubular casing is dyed in a pattern.

30 26. The apparatus of claim 15, wherein said tubular casing further comprises flavoring.

27. A method of creating a dimpled appearance on a food product, comprising:
- shirring a casing having a cross-sectional dimension onto a filling horn having a cross-sectional dimension less than said cross-sectional dimension of said casing,
- 5 rucking a netting having a cross-sectional dimension less than said cross-sectional dimension of said casing onto a netting tube,
- attaching said netting tube to said filling horn,
- extruding food products through said filling horn, whereby the food products expand said casing against said netting to create a dimpled appearance in the food product.
- 10
28. The method of claim 27, further comprising clipping said tubular casing and said netting.

FIG. 2

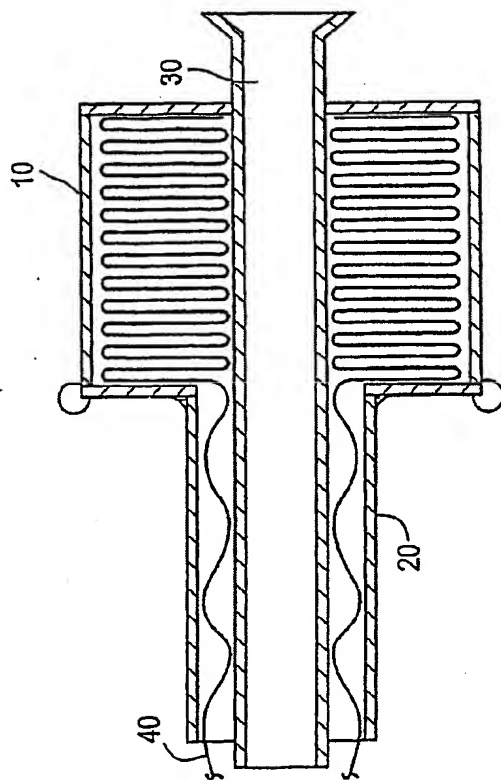


FIG. 3

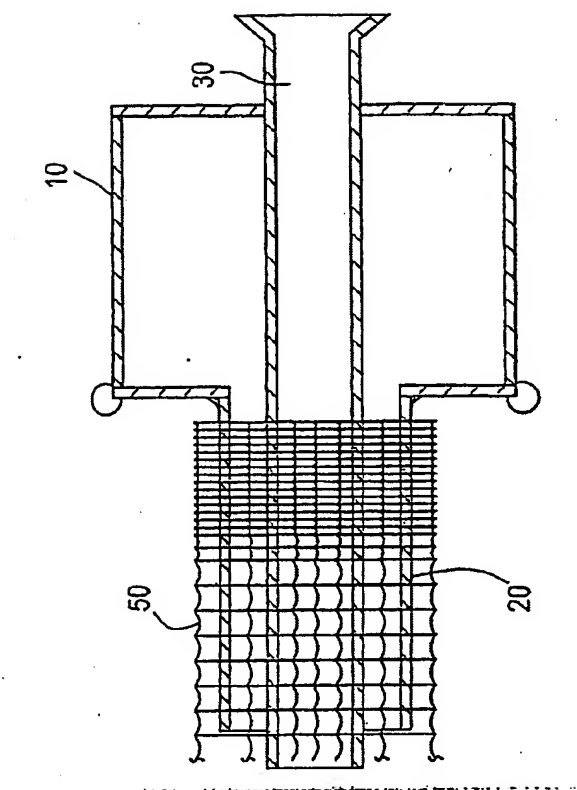


FIG. 4

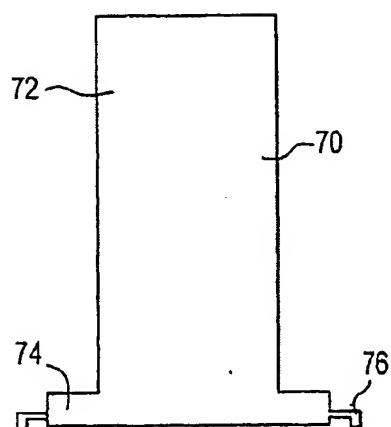


FIG. 5

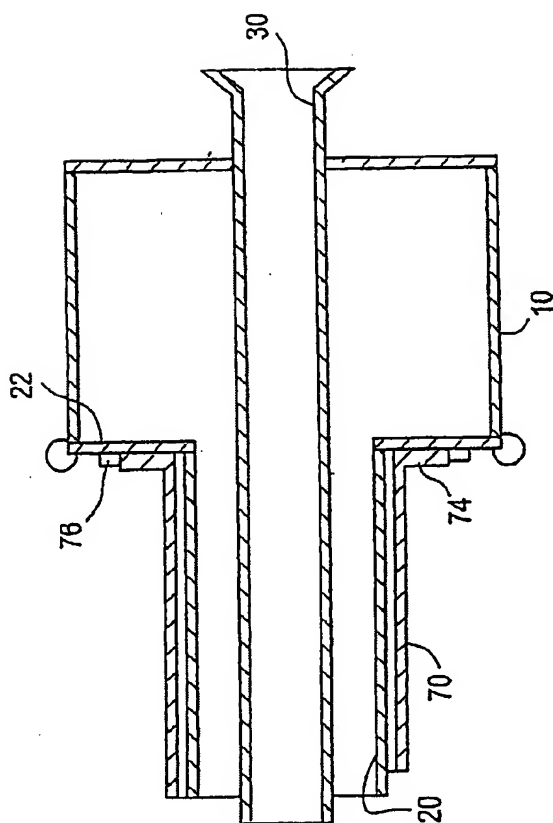


FIG. 6

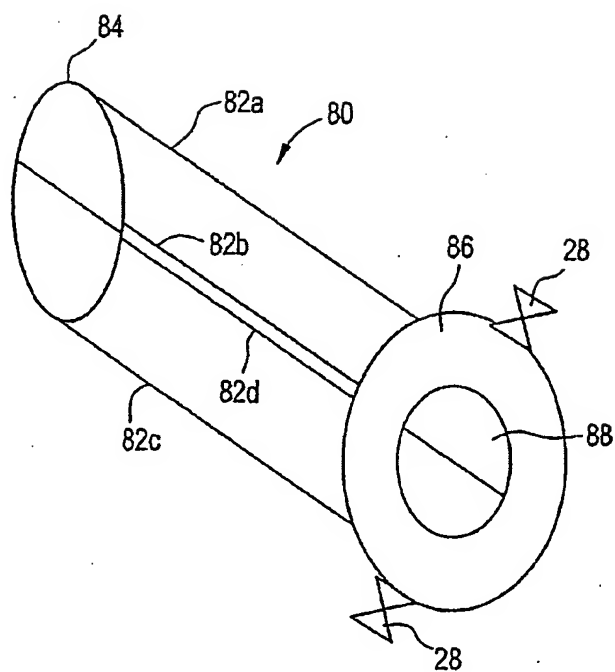


FIG. 7

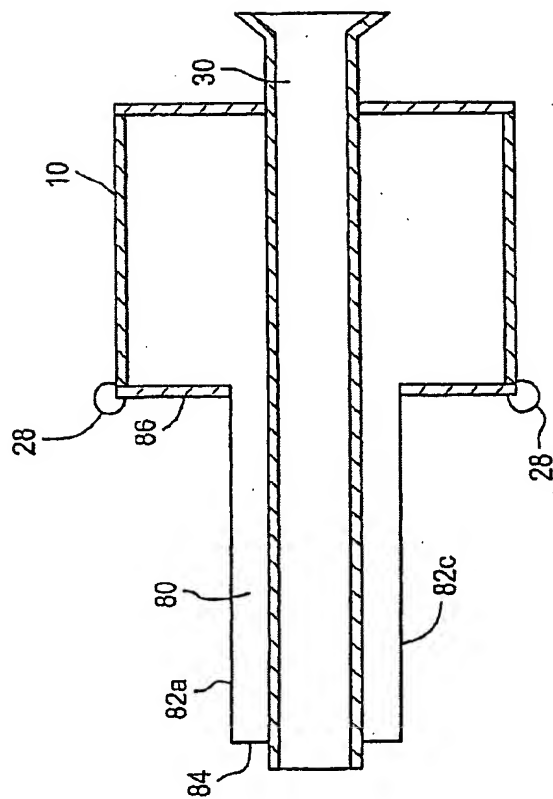
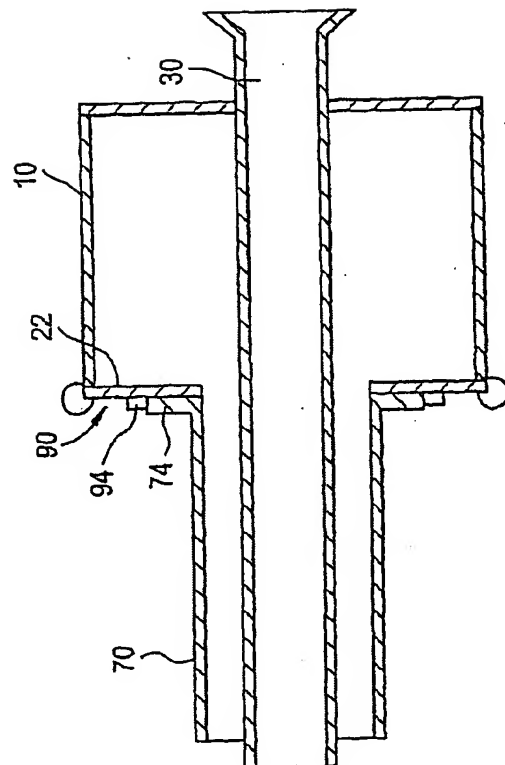


FIG. 8



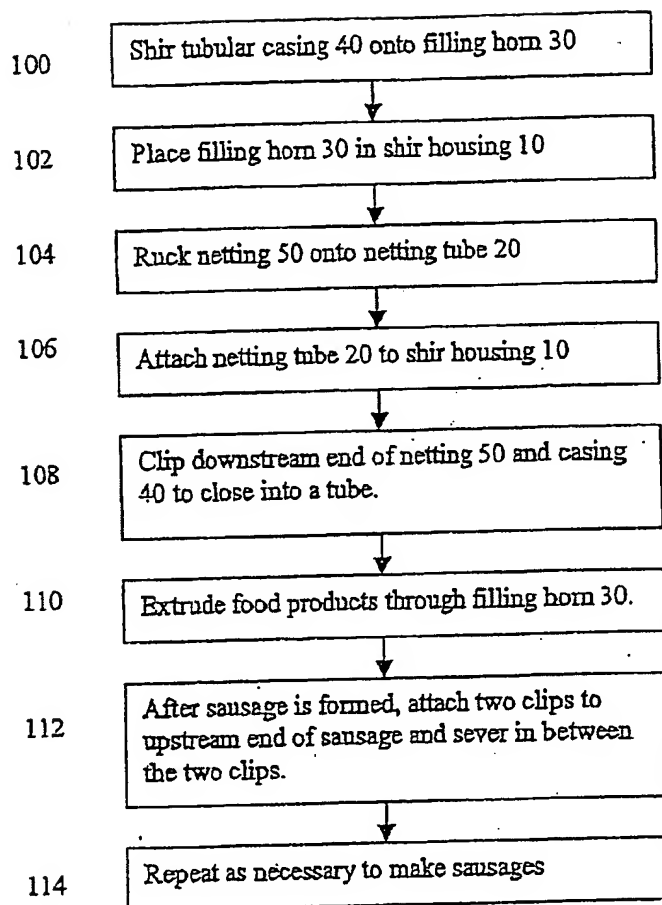


Figure 9

FIG. 10

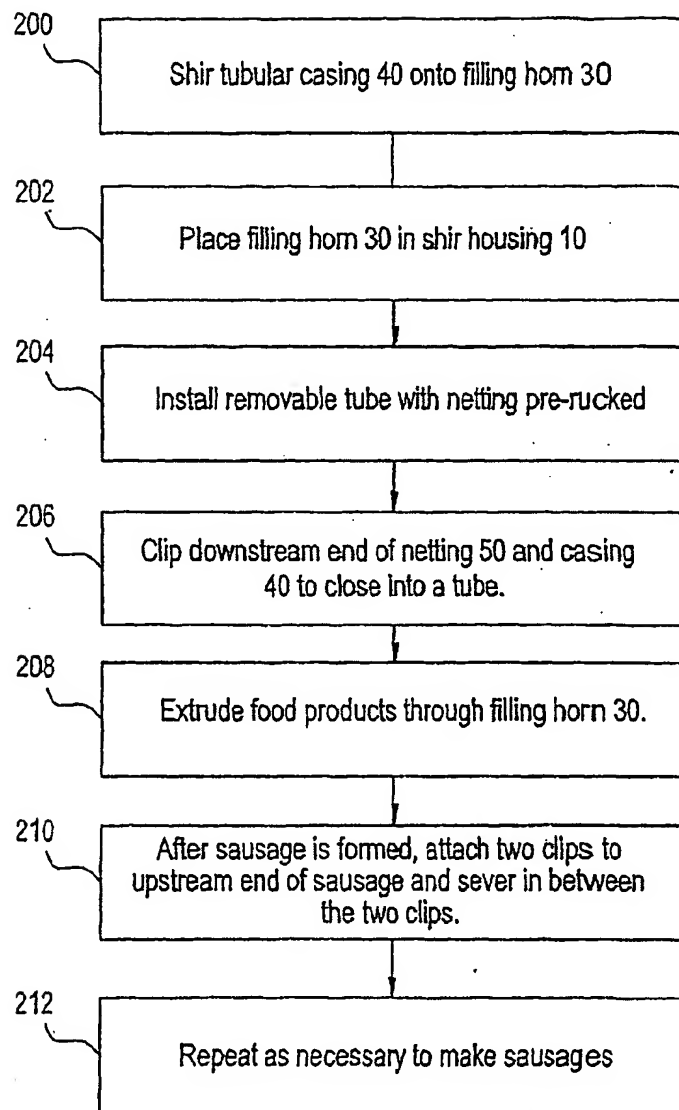


FIG. 11

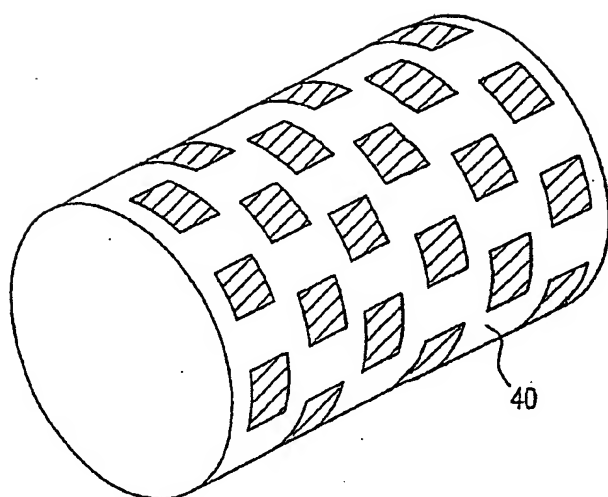


EXHIBIT B

PATENT COÖPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 1776/42237/7-PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No. PCT/US04/35825	International filing date (<i>day/month/year</i>) 28 October 2004 (28.10.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 28 October 2003 (28.10.2003)
Applicant POLY-CLIP SYSTEMS CORP.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 2



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention

- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/35825

Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

NEW ABSTRACT

An apparatus and method to net shirred tubular casing, in order to create a highly-dimpled food product. A filling horn (30), shir housing (10), and removable netting tube (20) allow for the extrusion of food products into an edible tubular collagen film (40), which itself expands into a netting (50) of a smaller diameter than that of the film. As the food product under pressure expands against the tubular film (40), it presses through the spaces in the netting (50) to create a dimpled appearance. After the food product has been further processed, the netting (50) is removed, leaving a highly-dimpled appearance.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/35825

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : A 22 C 11/00 US CL : 452/30 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 452/30-32, 35-39, 46-48 and 51 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,024,041 A (URBAN et al) 18 June 1991 See the entire document.	All
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 17 April 2005 (17.04.2005)	Date of mailing of the international search report 03 AUG 2005	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Thomas Price Telephone No. 703-308-1113	

EXHIBIT C

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
RAIFORD A. BLACKSTONE, JR.
Trexler, Bushnell, Giangiorgi
BLACKSTONE & MARR, LTD.
105 WEST ADAMS STREET, SUITE 3600
CHICAGO, IL 60603

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 1776/42237/1-PCT		Date of mailing (day/month/year) 03 AUG 2003
FOR FURTHER ACTION See paragraph 2 below		
International application No. PCT/US04/35825	International filing date (day/month/year) 28 October 2004 (28.10.2004)	Priority date (day/month/year) 28 October 2003 (28.10.2003)
International Patent Classification (IPC) or both national classification and IPC IPC(7): A 22 C 11/00 and US Cl.: 452/30		
Applicant POLY-CLIP SYSTEMS CORP.		

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

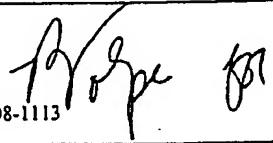
2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66 *1bis(b)* that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Thomas Price  Telephone No. 703-308-1113
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US04/35825

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23 I(b))

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US04/35825

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims 1-28 YES

Claims NONE NO

Inventive step (IS)

Claims 1-28 YES

Claims NONE NO

Industrial applicability (IA)

Claims 1-28 YES

Claims NONE NO

2. Citations and explanations:

Claims 1-28 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the claimed invention.

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because subject matter claimed can be made or used in industry.